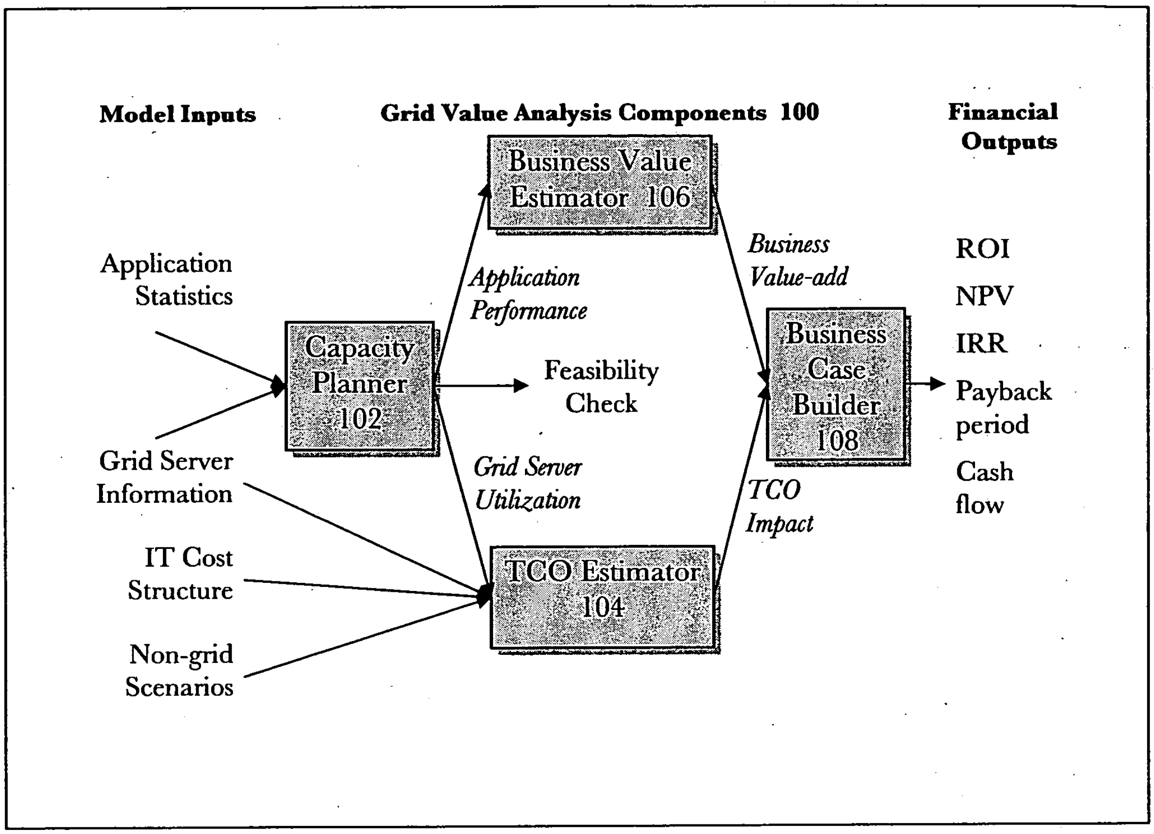
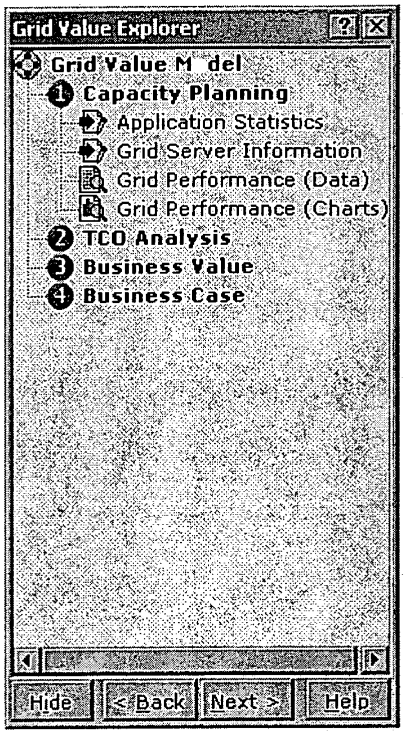


Fig. 1: Components of the Grid Value Model



200

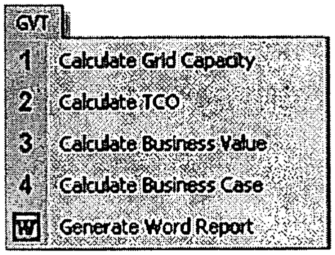
Fig. 2

Fig. 3

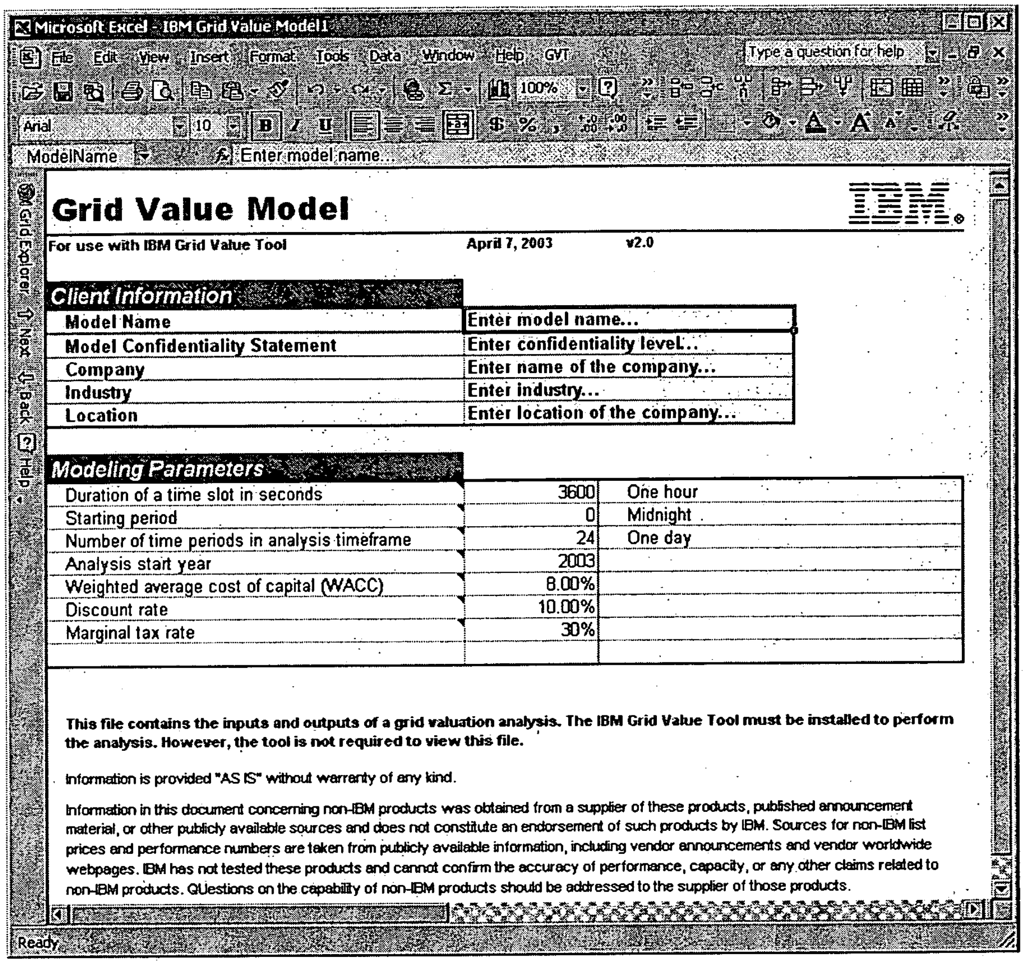
Fig. 4

Fig. 5

Fig. 6


GVT
1 Calculate Grid Capacity
2 Calculate TCO
3 Calculate Business Value
4 Calculate Business Case
W Generate Word Report

700 Fig. 7



Grid Value Model

For use with IBM Grid Value Tool April 7, 2003 v2.0

Client Information

Model Name	**Enter model name...**
Model Confidentiality Statement	**Enter confidentiality level...**
Company	**Enter name of the company...**
Industry	**Enter industry...**
Location	**Enter location of the company...**

Modeling Parameters

Duration of a time slot in seconds	3600	One hour
Starting period	0	Midnight
Number of time periods in analysis timeframe	24	One day
Analysis start year	2003	
Weighted average cost of capital (WACC)	8.00%	
Discount rate	10.00%	
Marginal tax rate	30%	

This file contains the inputs and outputs of a grid valuation analysis. The IBM Grid Value Tool must be installed to perform the analysis. However, the tool is not required to view this file.

Information is provided "AS IS" without warranty of any kind.

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800

Fig. 8: Grid Value Model start page

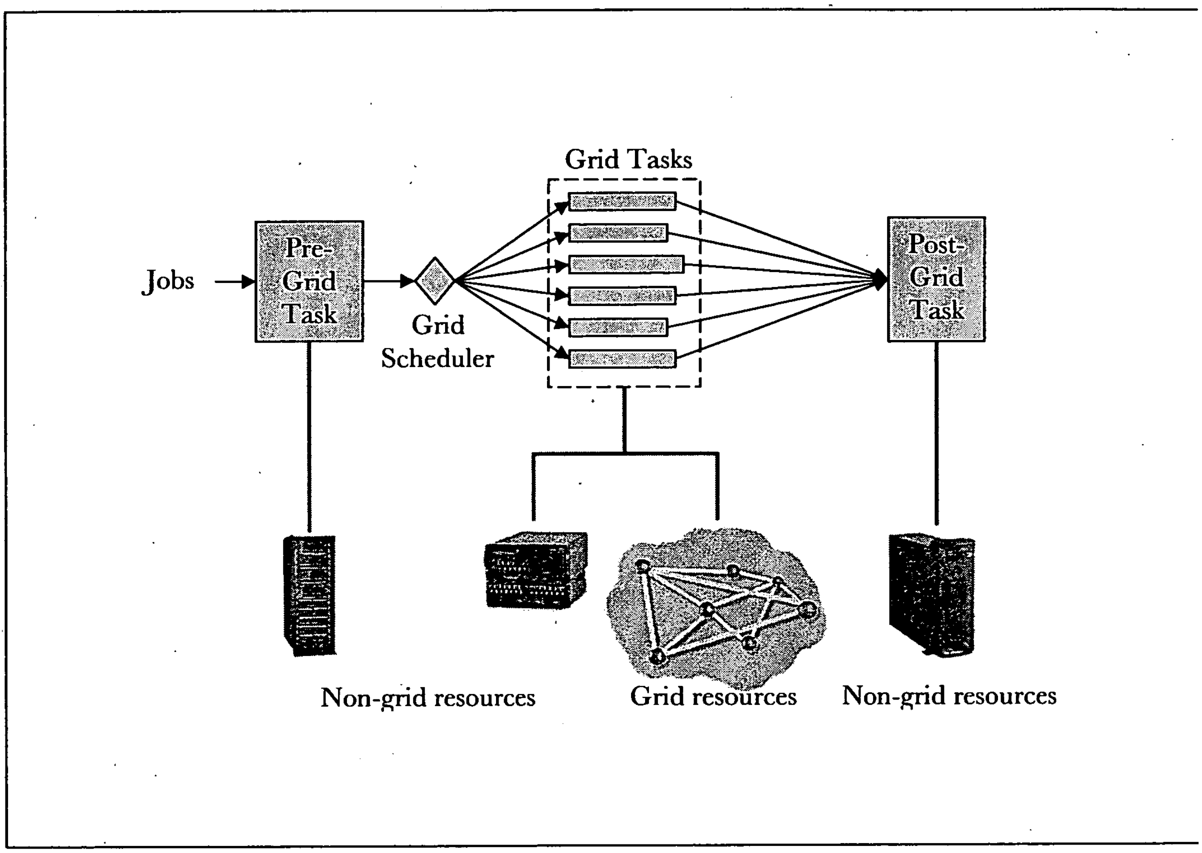
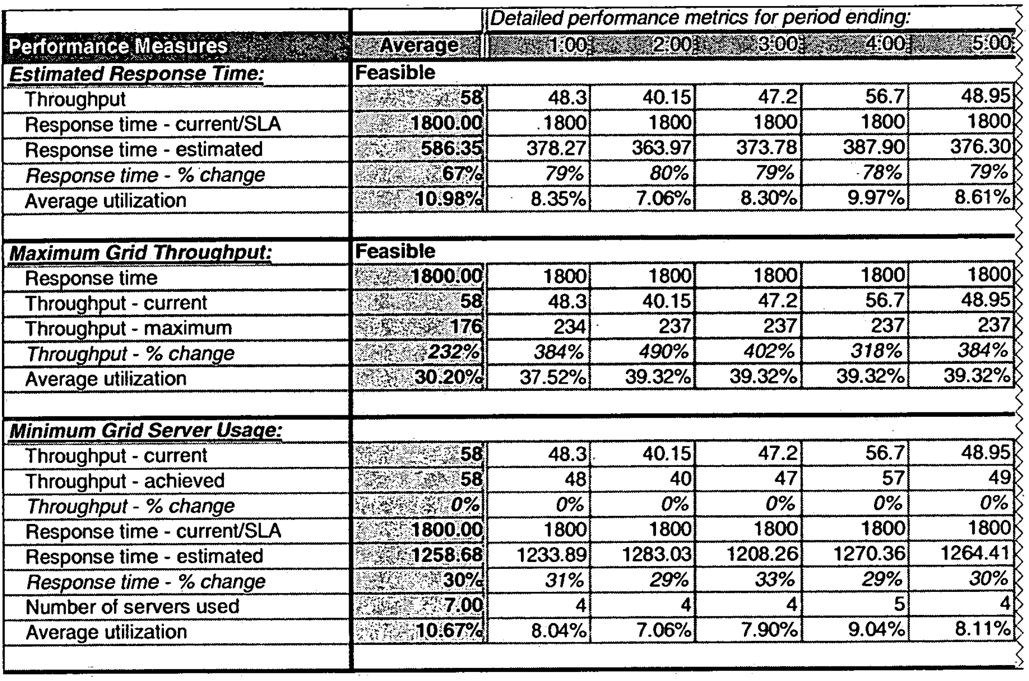
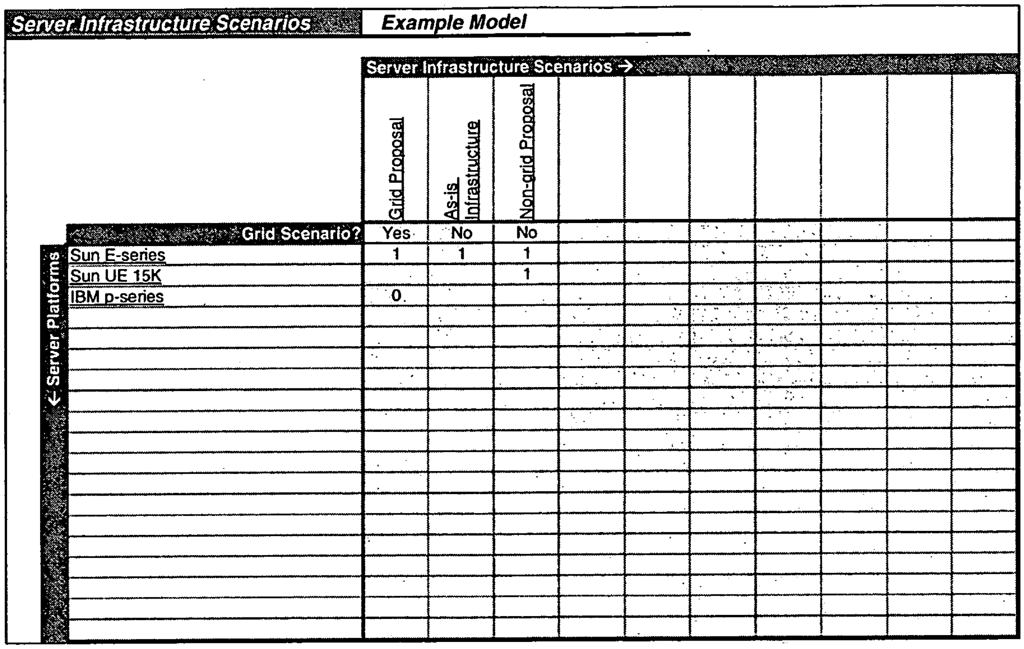


Fig. 9: Model of Grid Application Resource Requirements



		Detailed performance metrics for period ending:				
Performance Measures	Average	1:00	2:00	3:00	4:00	5:00
Estimated Response Time:	**Feasible**					
Throughput	**58**	48.3	40.15	47.2	56.7	48.95
Response time - current/SLA	**1800.00**	1800	1800	1800	1800	1800
Response time - estimated	**586.35**	378.27	363.97	373.78	387.90	376.30
Response time - % change	***67%***	*79%*	*80%*	*79%*	*78%*	*79%*
Average utilization	**10.98%**	8.35%	7.06%	8.30%	9.97%	8.61%
Maximum Grid Throughput:	**Feasible**					
Response time	**1800.00**	1800	1800	1800	1800	1800
Throughput - current	**58**	48.3	40.15	47.2	56.7	48.95
Throughput - maximum	**176**	234	237	237	237	237
Throughput - % change	***232%***	*384%*	*490%*	*402%*	*318%*	*384%*
Average utilization	**30.20%**	37.52%	39.32%	39.32%	39.32%	39.32%
Minimum Grid Server Usage:						
Throughput - current	**58**	48.3	40.15	47.2	56.7	48.95
Throughput - achieved	**58**	48	40	47	57	49
Throughput - % change	***0%***	*0%*	*0%*	*0%*	*0%*	*0%*
Response time - current/SLA	**1800.00**	1800	1800	1800	1800	1800
Response time - estimated	**1258.68**	1233.89	1283.03	1208.26	1270.36	1264.41
Response time - % change	***30%***	*31%*	*29%*	*33%*	*29%*	*30%*
Number of servers used	**7.00**	4	4	4	5	4
Average utilization	**10.67%**	8.04%	7.06%	7.90%	9.04%	8.11%

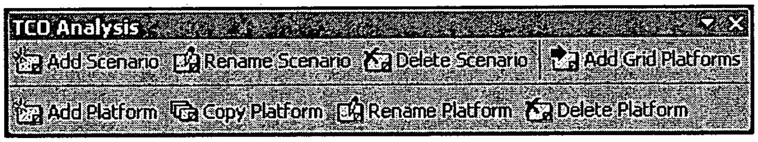
Fig. 10: Grid Capacity Planner Output (only the first 5 analysis periods are shown here)


Server Infrastructure Scenarios
Example Model
Server Infrastructure Scenarios →
← Server Platforms

Grid Scenario?	Grid Proposal	As-is Infrastructure	Non-grid Proposal
	Yes	No	No
Sun E-series	1	1	1
Sun UE 15K			1
IBM p-series	0		

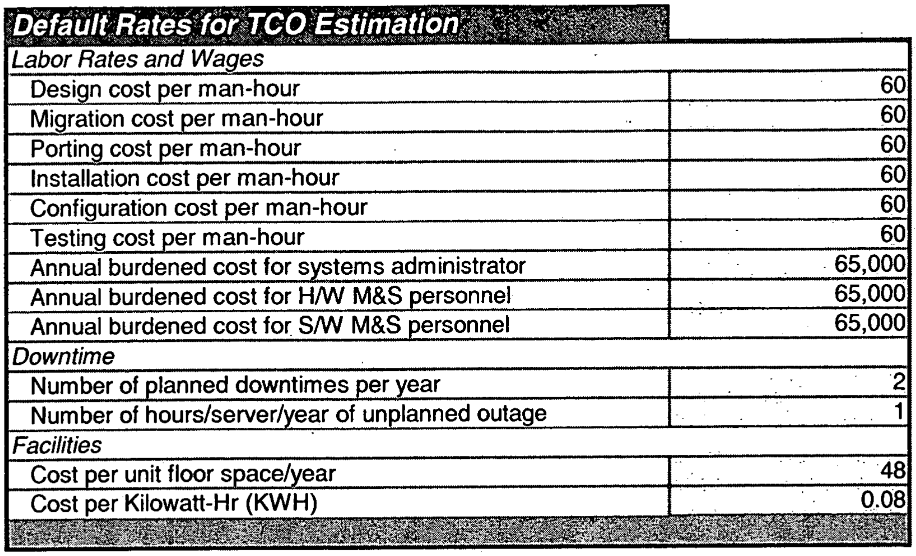
1100

Fig. 11: Server Infrastructure Scenarios



1200

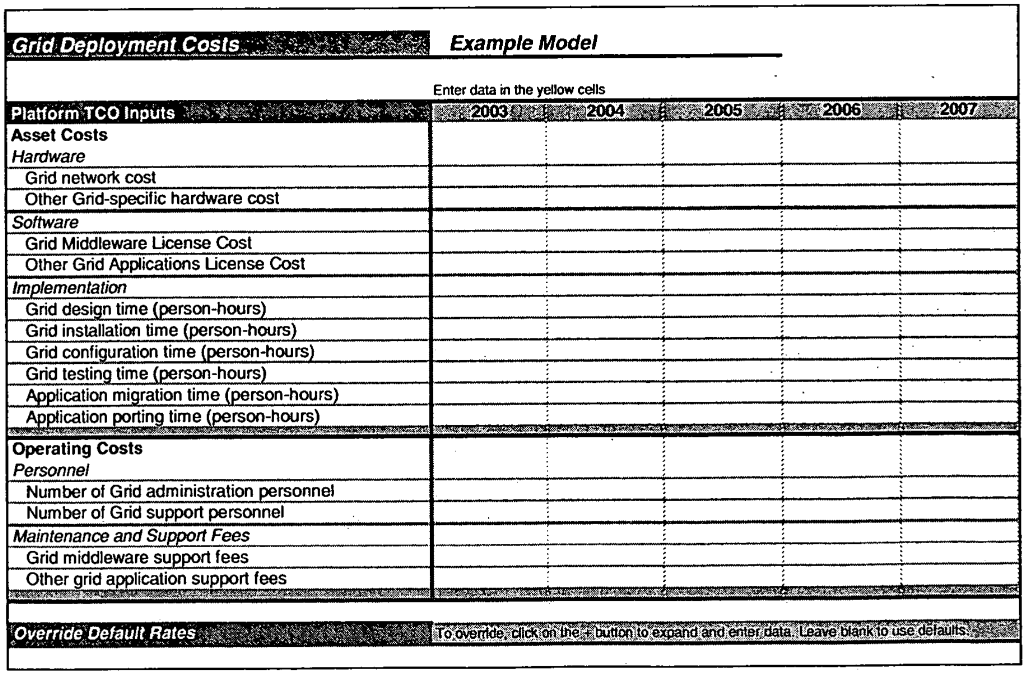
Fig. 12



Default Rates for TCO Estimation	
Labor Rates and Wages	
Design cost per man-hour	60
Migration cost per man-hour	60
Porting cost per man-hour	60
Installation cost per man-hour	60
Configuration cost per man-hour	60
Testing cost per man-hour	60
Annual burdened cost for systems administrator	65,000
Annual burdened cost for H/W M&S personnel	65,000
Annual burdened cost for S/W M&S personnel	65,000
Downtime	
Number of planned downtimes per year	2
Number of hours/server/year of unplanned outage	1
Facilities	
Cost per unit floor space/year	48
Cost per Kilowatt-Hr (KWH)	0.08

1300

Fig. 13: Default TCO Rates



Grid Deployment Costs *Example Model*

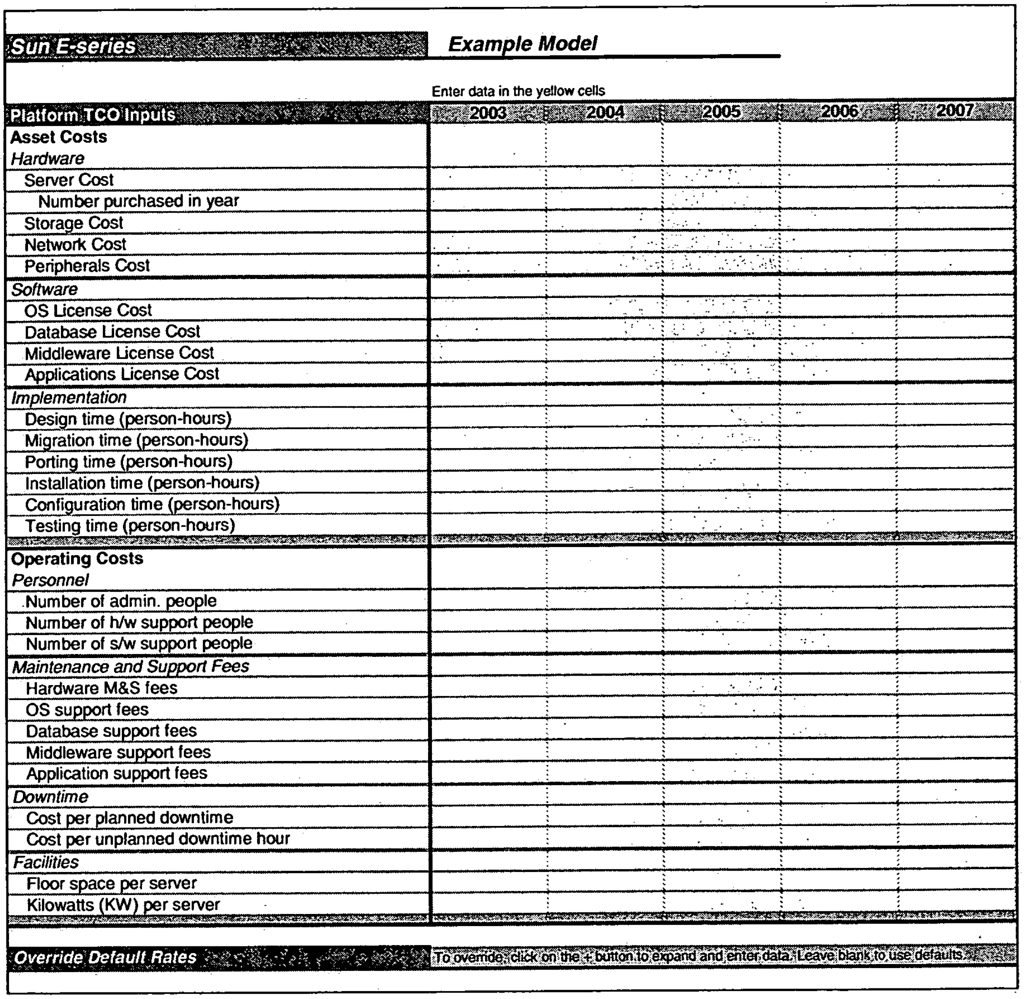
Enter data in the yellow cells

Platform TCO Inputs	2003	2004	2005	2006	2007
Asset Costs					
Hardware					
Grid network cost					
Other Grid-specific hardware cost					
Software					
Grid Middleware License Cost					
Other Grid Applications License Cost					
Implementation					
Grid design time (person-hours)					
Grid installation time (person-hours)					
Grid configuration time (person-hours)					
Grid testing time (person-hours)					
Application migration time (person-hours)					
Application porting time (person-hours)					
Operating Costs					
Personnel					
Number of Grid administration personnel					
Number of Grid support personnel					
Maintenance and Support Fees					
Grid middleware support fees					
Other grid application support fees					

Override Default Rates To override, click on the + button to expand and enter data. Leave blank to use defaults.

1400

Fig. 14: Grid Deployment Cost



Sun E-series *Example Model*

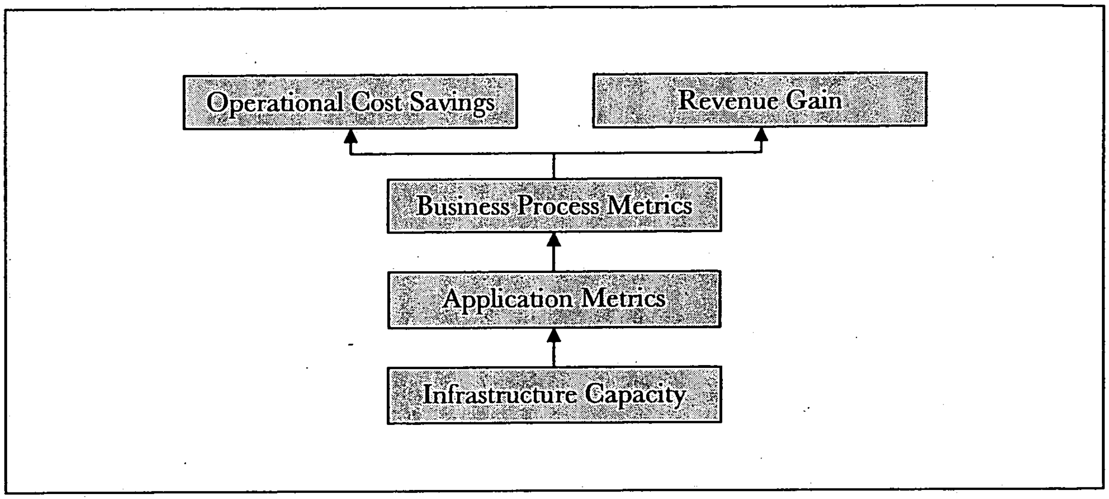
Enter data in the yellow cells

Platform TCO Inputs	2003	2004	2005	2006	2007
Asset Costs					
Hardware					
Server Cost					
Number purchased in year					
Storage Cost					
Network Cost					
Peripherals Cost					
Software					
OS License Cost					
Database License Cost					
Middleware License Cost					
Applications License Cost					
Implementation					
Design time (person-hours)					
Migration time (person-hours)					
Porting time (person-hours)					
Installation time (person-hours)					
Configuration time (person-hours)					
Testing time (person-hours)					
Operating Costs					
Personnel					
Number of admin. people					
Number of h/w support people					
Number of s/w support people					
Maintenance and Support Fees					
Hardware M&S fees					
OS support fees					
Database support fees					
Middleware support fees					
Application support fees					
Downtime					
Cost per planned downtime					
Cost per unplanned downtime hour					
Facilities					
Floor space per server					
Kilowatts (KW) per server					

Override Default Rates To override, click on the + button to expand and enter data. Leave blank to use defaults.

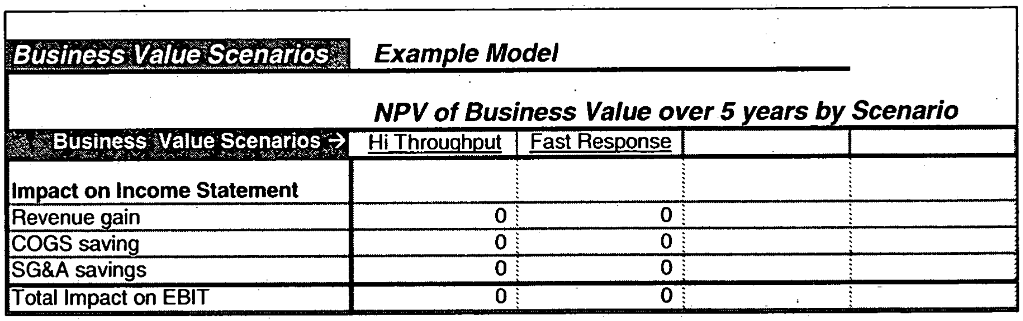
1500

Fig.15: Server Platform TCO



1600

Fig.16: Framework for Modeling Business Value Estimation



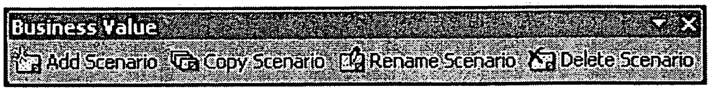
Business Value Scenarios ***Example Model***

NPV of Business Value over 5 years by Scenario

Business Value Scenarios →	Hi Throughput	Fast Response		
Impact on Income Statement				
Revenue gain	0	0		
COGS saving	0	0		
SG&A savings	0	0		
Total Impact on EBIT	0	0		

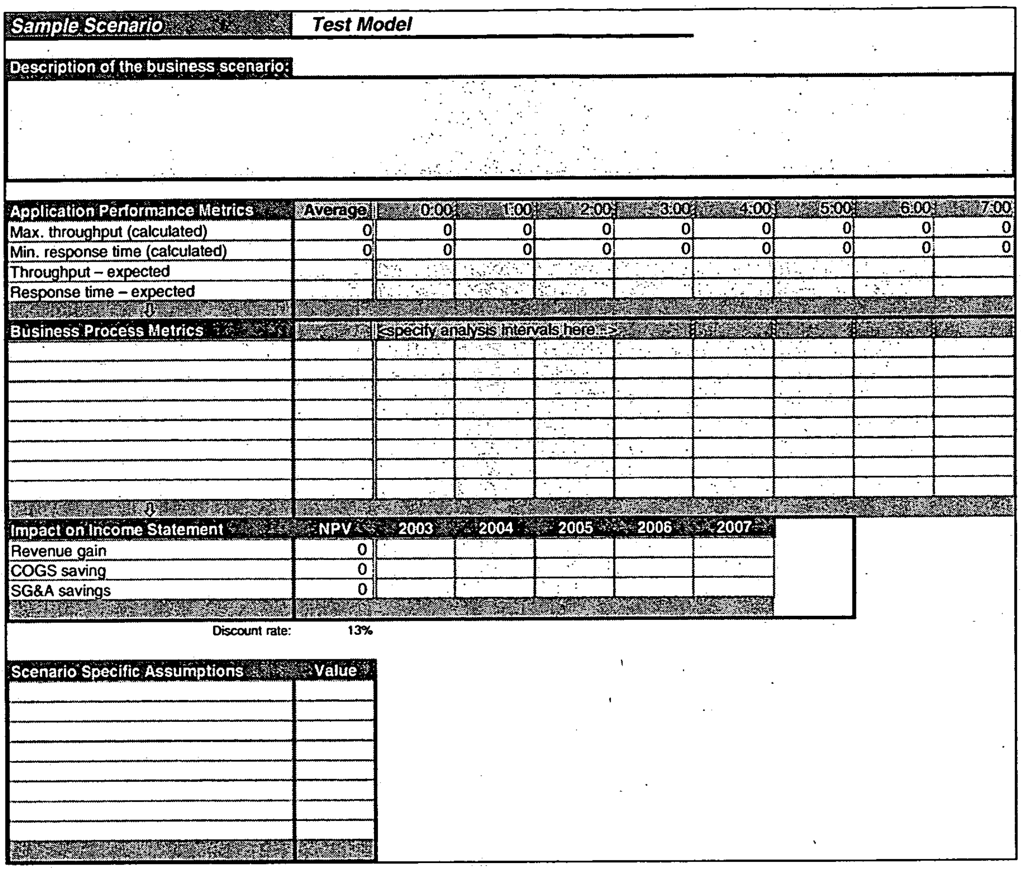
1700

Fig.17: Business Value Estimation Summary Page



1800

Fig. 18



Sample Scenario *Test Model*

Description of the business scenario:

Application Performance Metrics	Average	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00
Max. throughput (calculated)	0	0	0	0	0	0	0	0	0
Min. response time (calculated)	0	0	0	0	0	0	0	0	0
Throughput – expected									
Response time – expected									
⇩									

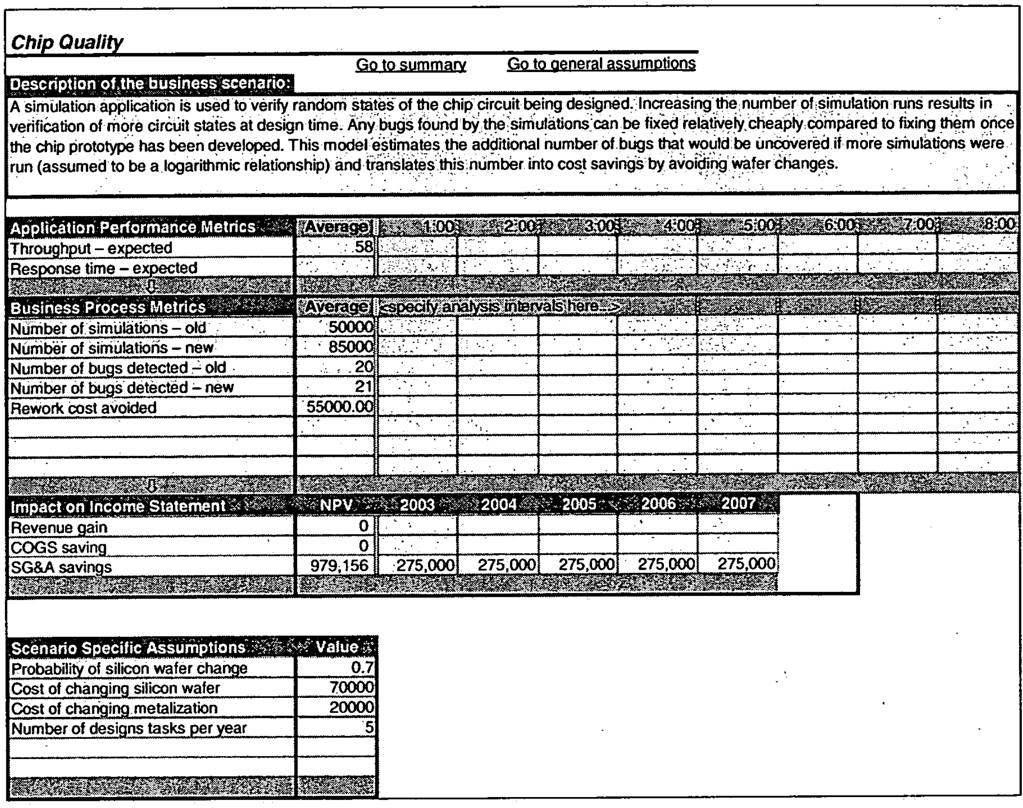
Business Process Metrics		<specify analysis intervals here ->							
⇩									

Impact on Income Statement	NPV	2003	2004	2005	2006	2007
Revenue gain	0					
COGS saving	0					
SG&A savings	0					

Discount rate: 13%

Scenario Specific Assumptions	Value

Fig.19: A Business Value Scenario Worksheet



Chip Quality

Go to summary   Go to general assumptions

Description of the business scenario:

A simulation application is used to verify random states of the chip circuit being designed. Increasing the number of simulation runs results in verification of more circuit states at design time. Any bugs found by the simulations can be fixed relatively cheaply compared to fixing them once the chip prototype has been developed. This model estimates the additional number of bugs that would be uncovered if more simulations were run (assumed to be a logarithmic relationship) and translates this number into cost savings by avoiding wafer changes.

Application Performance Metrics	Average	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
Throughput – expected	58								
Response time – expected									

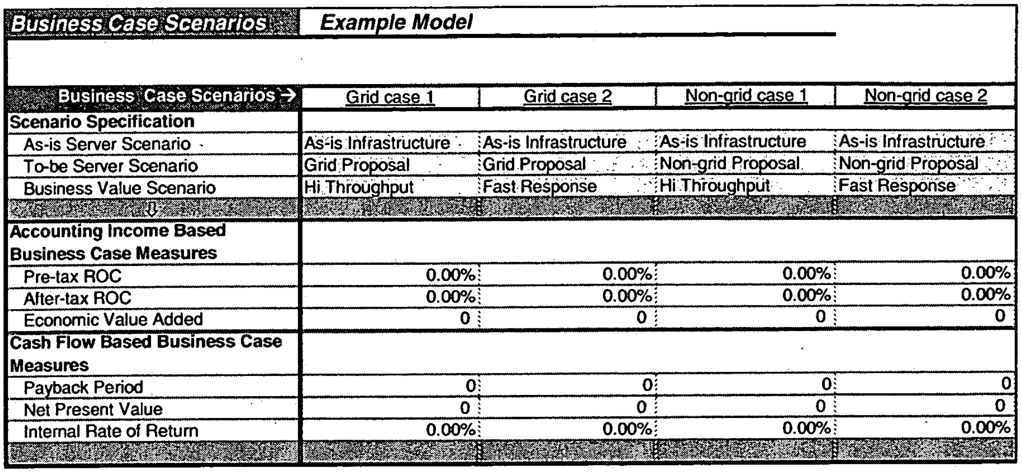
Business Process Metrics	Average	<specify analysis intervals here...>							
Number of simulations – old	50000								
Number of simulations – new	85000								
Number of bugs detected – old	20								
Number of bugs detected – new	21								
Rework cost avoided	55000.00								

Impact on Income Statement	NPV	2003	2004	2005	2006	2007
Revenue gain	0					
COGS saving	0					
SG&A savings	979,156	275,000	275,000	275,000	275,000	275,000

Scenario Specific Assumptions	Value
Probability of silicon wafer change	0.7
Cost of changing silicon wafer	70000
Cost of changing metalization	20000
Number of designs tasks per year	5

2000

Fig.20: Business Value Model for Chip Verification Simulations

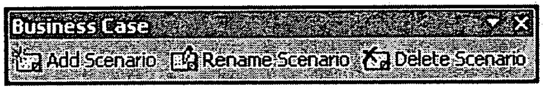


Business Case Scenarios *Example Model*

Business Case Scenarios →	Grid case 1	Grid case 2	Non-grid case 1	Non-grid case 2
Scenario Specification				
As-is Server Scenario	As-is Infrastructure	As-is Infrastructure	As-is Infrastructure	As-is Infrastructure
To-be Server Scenario	Grid Proposal	Grid Proposal	Non-grid Proposal	Non-grid Proposal
Business Value Scenario	Hi Throughput	Fast Response	Hi Throughput	Fast Response
⇩				
Accounting Income Based Business Case Measures				
Pre-tax ROC	0.00%	0.00%	0.00%	0.00%
After-tax ROC	0.00%	0.00%	0.00%	0.00%
Economic Value Added	0	0	0	0
Cash Flow Based Business Case Measures				
Payback Period	0	0	0	0
Net Present Value	0	0	0	0
Internal Rate of Return	0.00%	0.00%	0.00%	0.00%

2100

Fig.21: Business Case Scenarios Page



2200

Fig. 22